

**ABSTRACT OF THE DISCLOSURE**

A method and apparatus for occlusion testing primitives being processed in a graphics system and for updating a Z pyramid data structure used for occlusion testing. The Z pyramid data structure is updated on the fly, i.e., as primitives are being occlusion tested. The apparatus comprises logic configured to create the Z pyramid data structure and to perform occlusion testing. The Z pyramid data structure comprises a plurality of levels, each of which comprises a plurality of regions. Each region comprises a plurality of subregions, each of which corresponds to a single Z value. Each region corresponds to a plurality of Z values and has a maximum region Z value which corresponds to the largest Z value of the region. The logic compares the minimum Z value of each primitive with the maximum Z value of a region associated with the tested primitive to determine whether or not the tested primitive is fully occluded. Coverage masks are maintained by the logic for the different levels of the Z pyramid data structure to enable the Z pyramid data structure to be updated on the fly. When certain bits in the coverage masks are set, the logic causes the Z pyramid data structure to be updated.